

# The Importance of Circular Economy for Businesses in Russia

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## ABSTRACT

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Today, due to the economic growth, the exploitation of planet's resources is so high that it is a time to find alternative ways to use resources and make business. Understanding the finiteness of earth's raw materials, makes a call for a new economic model – circular economy. Its main purpose is to decrease the input of raw materials and waste output to the environment by creating closed production and consumption loops. Circular economy aims to replace the established linear economy model, which acts like “take, make, dispose”.

The purpose of the research is to establish how circular economy can be beneficial for a Russian company based on the example of FIRO-O Company. Suggestions on how else circular economy principles can be applied in business are introduced in the research.

The deductive approach was used for the study. Qualitative methods were applied in order to answer the research question and sub-questions. Both primary and secondary data were used in the thesis. Secondary data is mainly collected from online sources and published articles.

The empirical part of the study includes six structured interviews and a case study of the FIRO-O Company. The taken interviews provide an understanding on how a company can move towards circular economy and what aspects can be improved. The research outcomes consider that the case company should implement several circular economy business models, utilize recycling and industrial side streams and find new ways of using resources.

Key words: circular economy, environment, sustainability, waste-free production, business models, Russia

## CONTENTS

1	INTRODUCTION	1
1.1	Research Background	1
1.2	Thesis Objectives, Research Questions and Limitations	2
1.3	Theoretical Framework	4
1.4	Research Methodology and Data Collection	4
1.5	Thesis Structure	6
2	THE CONCEPT OF CIRCULAR ECONOMY	8
2.1	Circular Economy Definition	8
2.2	Circular Economy Origins	9
2.3	Linear Economy	10
2.4	Circular Economy Principles	12
2.5	Circular Economy Characteristics	14
2.6	Circular Economy Opportunities	16
2.7	Circular Economy Opportunities in Business	19
3	THE CIRCULAR ECONOMY BUSINESS MODELS	22
3.1	The Definition of Circular Economy Business Model	22
3.2	Circular Supplies	23
3.3	Resource Recovery	24
3.4	Product Life Extension	25
3.5	Sharing Platforms	27
3.6	Product as a Service	28
4	THE CIRCULAR ECONOMY IN RUSSIA	30
4.1	Current Situation	30
4.2	Laws, Regulations, Barriers	32
4.3	Examples of Circular Economy in Russian Entrepreneurship	34
4.4	Circular Economy in EU	38
5	EMPIRICAL RESEARCH AND DATA ANALYSIS	41
5.1	Formulation of the Empirical Research	41
5.2	Data Collection	42
5.3	Data Analysis	43
5.3.1	Analysis of the FIRO-O Company Interview	43
5.3.2	Analysis of the OptiKom Company Interview	45

5.3.3	Analysis of the Baltika Brewery Interview	46
5.3.4	Analysis of the Second-hand Store “Spasibo” Interview	48
5.3.5	Analysis of the Rogachev Milk Canning Plant Interview	49
5.3.6	Analysis of the Spivak Company Interview	50
6	DEVELOPMENT PLAN	51
6.1	Case Company Introduction	51
6.2	Action Plan for the Case Company	52
6.2.1	Circular Supplies	53
6.2.2	Resource Recovery	54
6.2.3	Product Life Extension	55
6.2.4	Sharing Platform	56
6.2.5	Product as a Service	57
7	CONCLUSION	58
7.1	Answers to Research Questions	58
7.2	Validity and Reliability	60
7.3	Suggestions on Further Research	60
8	SUMMARY	61
	REFERENCES	62
	APPENDICES	70

## 1 INTRODUCTION

This chapter will introduce the topic for the reader and explain the research methods that were conducted during the thesis writing process. The aim, background, and idea of the research and the data collection methods are also explained in this chapter. Besides this, the research questions will be defined and discussed, and the thesis structure will be presented. The research background chapter gives the reader the idea why the topic was chosen. The thesis objectives, research questions, and limitations chapter discusses the purpose of the study. The theoretical framework section explains which theories and topics are studied in the thesis by the researcher. The research methodology and data collection chapter gives the idea of which research methods will be used in the study and how data collection is conducted. The last section of the introduction presents the structure of the thesis.

### 1.1 Research Background

It is obvious that planet Earth is running out of its resources and we are, human beings, the main consumers of Earth's "gifts". We consume so many resources and produce so much waste that different parts of the globe are drowning in the waste. Governments and companies started realizing the problem which is relevant today, that resources are not limitless and something should be done about it, otherwise bigger problems may come. (McDonald 2017.)

However, what if it is possible to produce and consume without wasting? What if it is possible to use waste as a resource? The circular economy model (often called the Future Economy) has solutions both for producers and consumers. The main purpose of the circular economy is to keep products, its components, materials, and resources at their highest utility and value. It is a never-ending cycle of materials with no waste. The circular economy improves natural capital, optimises resource intensity,

and minimises system risks by creating and managing final stocks and renewable flows. (Ellen MacArthur Foundation 2016.)

The circular economy concept was born several decades ago. However, the real popularity and awareness of it was raised only several years ago with the help of the Ellen MacArthur Foundation that published its own study about the circular economy topic. (Geissdoerfer, Martin, Savaget, Paulo, Bocken, Nancy, Hultink & Jan 2017.)

Talking about the situation in geographical areas, the European Union has already set the implementation plan of circular economy and introduced the circular economy package in 2015 to support the transition of European states towards more sustainable and effective economy. (European Commission 2017a.) However, in Russia the situation is different. It is still more of an idea, than a come-true or implemented plan. But things are slowly changing. In 2016, Russia held the first conference about the circular economy (Paramonova 2016). Also, several Russian companies and entrepreneurs are trying to use circular economy principles in their businesses, but it is a very small contribution for such a large country.

In the thesis, the full idea of circular economy will be presented, its concept, characteristics, opportunities, business models. After gaining a deeper understanding of the circular economy's concept, the main goal will be to create a development plan for a Russian case company using circular economy business models.

## 1.2 Thesis Objectives, Research Questions and Limitations

The main objective of the thesis is to understand the concept of the circular economy and how circular economy is beneficial for Russian companies. Therefore, the final idea is to create a development plan for a Russian company called FIRO-O, based on the circular economy theory

and circular economy business models. The thesis provides a deeper understanding of the research topic

It is important to determine and define the research questions that need further studying. It may help the author to focus on specific topics and be more informative. The main aim of the research question is to provide a better understanding of what the research is about and which questions the author is trying to find answers to. Consequently, the purpose of the research question is to answer a research problem. (Myers 2013, 20-21.) The research question should be easily answered, so a good question should be simple, understandable and relevant. The thesis's main research question is:

- How is circular economy beneficial for Russian companies?

If the research question is difficult to answer at once, it is useful to define sub-questions that will help to answer the main question. In the study, the sub-questions are:

- What is the concept of circular economy?
- What are the circular economy business models?
- What is the situation of circular economy in Russian entrepreneurship?

There are always some limitations, demarcations and issues that can happen during the research and that are needed to be taken into consideration. The circular economy topic is relatively new. Consequently, there is a limited amount of previously taken studies, so that gives the researcher a space for innovative thinking or oppositely creates the challenges for the research. As we are talking about the importance of circular economy for businesses, the focus is more on economic and business aspects. Another limitation is that the research is focused on one geographical area – Russia (Russian market), so that it may not provide valid information for other regions and markets.

Besides this, other possible limitations could be the difficultness of contacting the big companies to find out the awareness that companies have concerning the circular economy. Moreover, as for data collection, interviews will be used. It may happen that companies' representatives do not know about such term and do not have any opinion about the circular economy topic. Therefore, the objectiveness of the respondents cannot be verified 100 percent. As it is needed lots of information for the research, it can postpone or slow the study and the thesis writing process in general.

### 1.3 Theoretical Framework

The purpose of the research is to prove or disprove the advantages of the circular economy for companies in Russia. In the theoretical part, studies about circular economy theory and its opposite concept – linear economy are used. In addition, the author uses Ellen MacArthur Foundation studies (that were conducted from 2015 to 2017) (2016), Accenture's business models (2014) and other circular economy studies. Also, the researcher examines circular economy principals, opportunities, and its characteristics.

The author discusses the environmental, economic and business situation in Russia and its path towards circular economy model. The thesis covers the examples of companies on Russian and world market that are using circular economy principles.

At the end of the study, data analysis and a development plan are conducted. The proof or disproof of the research hypothesis is made. It fully answers the presented research question and sub-questions.

### 1.4 Research Methodology and Data Collection

The research can be conducted using two different approaches: inductive and deductive. The inductive approach can be referred as the theory-



generating way to conduct the research. The inductive research concentrates first on the topic and then creates the theory based on the studies. Oppositely, the deductive method is theory-testing. The author designs the hypothesis and throughout the research tries to prove or disprove it. (Sheffield Hallam University 2016.) In this case, the author is using the deductive approach, as the hypothesis is set before the research. The hypothesis is:

- The circular economy is advantageous for Russian businesses.

In order to collect the necessary data, the researcher should choose the most suitable and convenient way and method of data collection. Even though there exist several research methodologies, the most common ones are qualitative and quantitative. (Sheffield Hallam University 2016.) Quantitative data is useful when the researcher intends to examine how something is working. It focuses on statistical data, measurable facts and helps generate information from large groups of population. (Cohen 2013, 112.)

Quantitative research involves such types of research methods as surveys (online, paper, mobile), telephone interviews, website interceptors and systematic observations. Qualitative data research method is used when you need to find out why something is happening and concentrate on the understanding of reasons, trends, opinions and motivations. Qualitative research allows the researcher to study the research problem in more detail. The most common methods are individual interviews, group discussions and observations. (Thomas 2003, 1-2.) The research approach, research methods and the data collection methods are shown in Figure 1, below.



FIGURE 1. Research methods

In this study, qualitative data will be implemented. The information will be collected from primary and secondary sources gained from the interviews, published articles and electronic sources. Conducted interviews will be presented and analyzed in the research.

### 1.5 Thesis Structure

The thesis is divided into two main parts: theoretical and empirical. In the first part – the introduction, the reasons of the chosen topic, also, the thesis objective, research questions, theoretical framework, data collection methodology are introduced.

In the second part, theoretical topics such as a concept, definition, principals of the circular economy, its characteristics and opportunities will be discussed. The third part of the thesis includes the study about the circular economy business models and shows real-life examples of companies implementing the circular business models. The last theoretical chapter examines the situation in Russia and its path towards the circular economy. The examples of circular economy adoption in other countries are presented.

Chapter 5 introduces the empirical part and data analysis. Firstly, it describes the data collection and the process. Secondly, it will explain how

the interview is designed and interview questions will be presented. All information that was collected during six interviews will be analyzed and applied in order to answer the research questions.

The sixth chapter introduces the case company, its mission, the analysis of how case company can implement circular economy business models. The development plan will be presented. The development plan is based on theoretical and empirical data and knowledge that was gained during the research.

The seventh chapter concludes the thesis and answers the research question and sub-questions. Additionally, the validity and reliability of the study are discussed, and recommendations for future research are given and explained.

The structure of the thesis is shown below, in Figure 2.

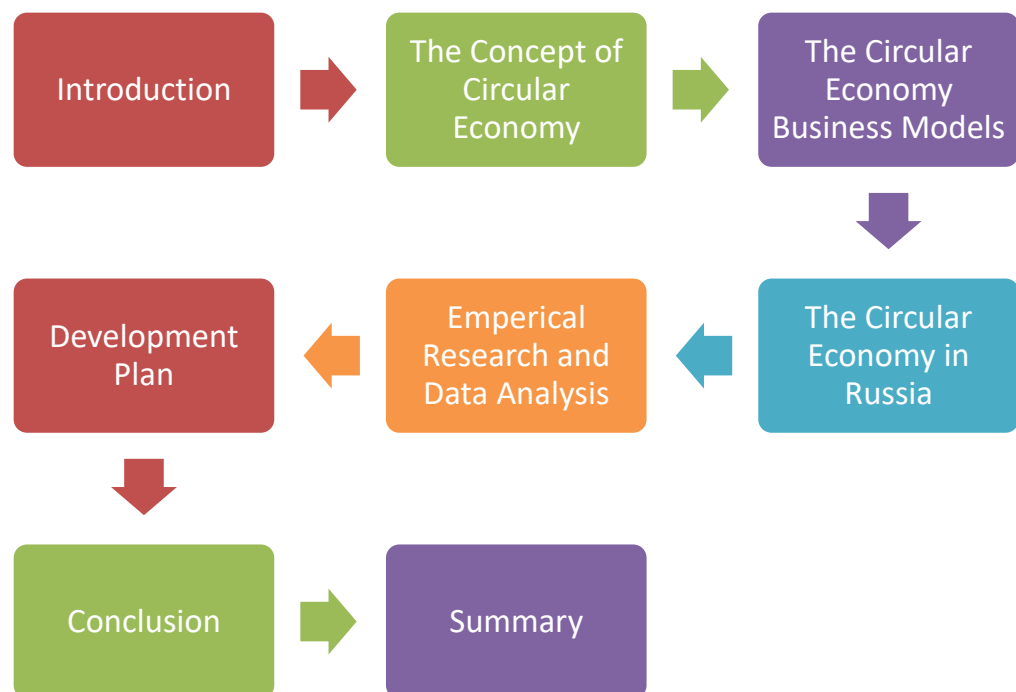


FIGURE 2. Thesis structure

## 2 THE CONCEPT OF CIRCULAR ECONOMY

The purpose of this chapter is to make the reader more familiar with the research topic, with the concept of the circular economy, its principals, characteristics and business models. This chapter answers the question “What is the concept of circular economy?” In sub-chapters 2.4 and 2.5, the principles and characteristics of the circular economy system are examined. Furthermore, the circular economy’s opportunities will be studied.

### 2.1 Circular Economy Definition

First of all, it is important to define what circular economy actually means. According to Ellen MacArthur Foundation, the circular economy is a regenerative economy which aims to keep materials and products at its highest usefulness (Ellen MacArthur Foundation 2017a). In other words, the circular economy concept is almost a waste-free production, that aims to reduce waste and pollution. The circular economy is referred to as being an industrial economy that distinguishes between biological and technical cycles. Biological nutrients are redesigned to enter to biosphere safely, while technical nutrients will not be returned to the biosphere as they are designed to circulate at its highest utility on the production process/system. (Ellen MacArthur Foundation 2017a.)

The circular economy is designed to create the waste-free production and consumption. Such an economic model includes the constant cycle of material during the manufacturing and consuming, which should be a closed-end turnover of substances that are returning to production without harming the environment. Companies should design the products to foresee the ways of its utilization or recycling. (Perman, Ma, McGilvray&Common 2003, 20.)

In the circular economy, our environment is treated respectfully. Using waste-free economy means caring about our future in economic, social,

financial and environmental senses. Figure 3 below shows the basic actions that circular economy can offer.

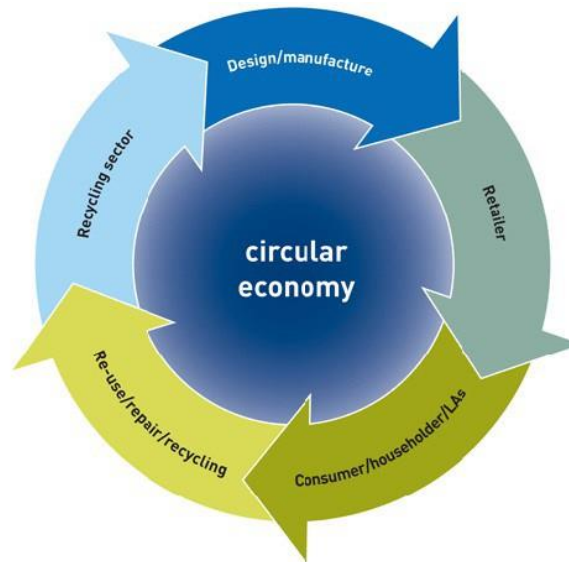


FIGURE 3. Circular Economy (Economena 2013)

## 2.2 Circular Economy Origins

The roots of the circular economy lead us to the late 1970s and cannot be referred to a single author. The idea of such concept was born with the help of several researchers, businesspersons and innovators. However, a few standout academics played a major role in the circular economy development.

Pearce and Turner, who were the pioneers of environmental economics (Pearce & Turner 1989.) In their numerous books and articles, they have studied and presented the theory of circular economy, its principles, advantages and other important aspects. However, the real boost in promotion of the concept was in 2012 due to the Ellen MacArthur Foundation economic report, which included the circular economy concept (Ellen MacArthur Foundation 2016.). The mentioned organization studied

such theories as Industrial Ecology, Biomimicry, and Cradle to Cradle, which created the undeniable foundation for circular economy importance and necessity for the modern world. (Mentink 2016.)

Moreover, there are two other names that should be mentioned: Stahel and Parker. Stahel was a Swiss architect and economist and the father of industrial sustainability. He is one of the biggest influencers on the field of sustainability. His famous philosophy manifests “service-life extension of goods - reuse, repair, remanufacture, upgrade technologically”. (Product-Life Institute 2016.) Also, he is a founder of the well-known phrase “Cradle to Cradle”, which is the opposite of “Cradle to Grave” concept, that shows the modern way of consuming things. Stahel was one of the first to propose to reform the current economy and close material cycles. Already in 1972, he admitted that established economic model is not sustainable, as a demand for raw materials and its consumption is increasing each year, and resources are only decreasing. (Meadows & Behrens 1972, 18.)

Parker was a British scientist and researcher who studied waste as a resource in the agricultural industry. He also worked on closed loop systems, developing new ones that can be exploited in the agriculture in Great Britain. Parker’s works were more than helpful in the development of circular economy theory. (Wharton School 2017.)

### 2.3 Linear Economy

Talking about the circular economy is impossible without the understanding of its contrast – linear economy. While the circular economy is aiming to remanufacture or reuse products, materials; the linear economy is what we have now: produce, consume and dispose or throw away. The products are made of raw materials, their product life can last from several minutes to few years at most, and then they are back at landfill or incinerators. This way of using things has now spread and used all over the world, creating millions of tons of waste each year. (Green

Alliance 2012.) The linear economy model is based on large quantities of cheap and easily accessible materials and energy (Ellen MacArthur Foundation 2015).

According to World Waste Survey (2015), annually about 2.8 billion of tons of technical waste is created. Two million tons of waste are extremely toxic. Eight million tons of plastics end up in the ocean by polluting fresh water consequently. (World Waste Survey 2015.) According to numerous researches, considering rates of growth in consumption and urban population, the volume of generation of municipal waste can double by 2025 (World Bank 2017).

Households in developed countries have traditionally been leaders in creating per capita waste (in the USA, for example, 733.7 kg, while in Russia it is 340 kg per person per year). According to the OECD (2017), 35% of municipal waste was recycled in the USA in 2013 and 65% in Germany. In Russia, according to different estimates, it was 3-10%, even though it is considered as the average index. (Kornilova 2016.) The linear economy model creates the shortage of the resources and follows the idea of making the profit only in the nearest future, leading to increasing costs.

To the opposite of linear economy, the circular economy is searching for ways to respect the natural boundaries by increasing the index of renewable resources, therefore reducing the raw material consumption. Emissions also will be minimized. The product will be used at its highest utility, eliminating the waste. (The European Environment Agency 2016.) For example, some brand produces clothes - we wear it and then just throw it away. However, with the circular economy we can recycle it and wear it again and again in some other form. Real-life examples will be presented later in the next chapters. Figure 2 below shows the outline of the linear economy in brief.

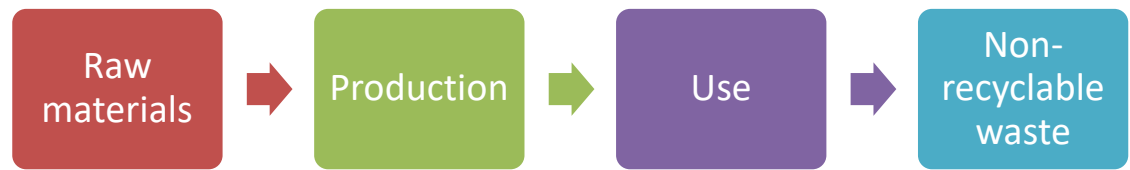


FIGURE 4. Linear Economy Model.

## 2.4 Circular Economy Principles

To have the deeper understanding of circular economy model, we should examine its main principles. Circular economy rests on three principles: the natural capital strengthening, optimization of resource yields and identification of natural external factors. These factors distinguish circular economy from linear economy.

### **Preservation and Strengthening of Natural Capital**

Preservation and strengthening of natural capital are possible due to the rational managing of finite stocks and renewable resources flows. Firstly, the utility must be dematerialized. In case of resources needed, the circular system will choose them accurately with using smart technologies for choosing renewable resources.

Besides this, the circular system enhances regeneration processes by improving the natural capital and supplying the nutrients within the system. For example, the soil can be regenerated due to circular economy principles or companies may generate better profit by using renewable materials in its production. (Ellen MacArthur Foundation 2015, 6.)

### **Resource Yields Optimization**

Resource yielded optimization happens by circulation of materials, products, components at its highest usefulness. The circulation should



happen both in biological and technical cycles. This means the system must be redesigned in order to support the components and resource circulation in the economy. Also, the system increases the number of cycles or time spent in it by changing and prolonging the product life and reuse optimization. Circular systems should also encourage nutrients to re-enter the biosphere as safely as possible for decompose and become new raw material for future cycles. (Ellen MacArthur Foundation 2015, 6.)

For biological materials, it is important to create an additional utility from products by using them in various applications. Both linear and circular economies demand to develop and improve the stated system, but circular economy does not compromise the effectiveness. (Ellen MacArthur Foundation 2015, 7.) Figure 5 below shows the outline of the circular economy by Ellen MacArthur Foundation.

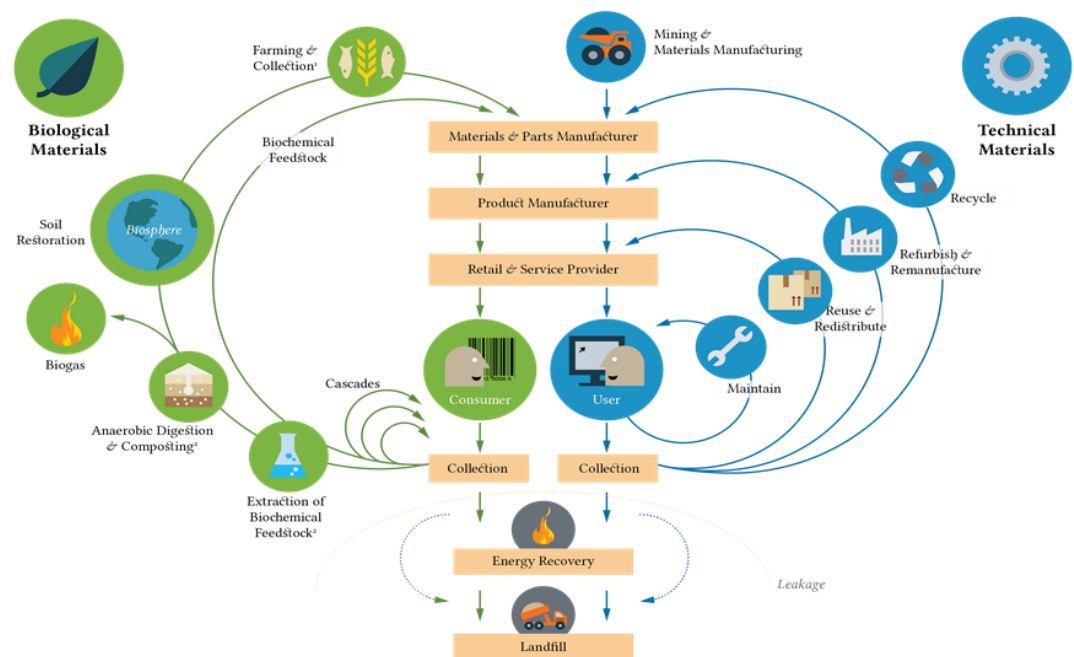


FIGURE 5. Outline of a circular economy (Ellen MacArthur Foundation 2015)

Figure 5 represents the simplified model of the circular economy. In the model, biological and technical cycles have been separated. This happens due the difference of material cycles. Biological materials can be returned to biosphere safely. The technical materials should be in use as long as possible. (Potocnik 2013, 24-25.)

### **Negative External Factors Identification**

To create progress, it is vital to identify the negative external factors that affect our system and create damage. Negative factors can have the impact on systems such as education, health, shelter, entertainment, and food. Also, it is important to control such resources as air, water, land use, protecting from pollution and toxic substances releasing.

These actions will accomplish the system effectiveness and point out the aspects which require more attention and work. (Ellen MacArthur Foundation 2015, 7.)

## **2.5 Circular Economy Characteristics**

The circular economy also has its own characteristics that are making the circular economy the economy of the future and different from the linear economy. In this chapter, circular economy's characteristics and its importance will be examined.

- Designed out waste

The circular economy is designed in the way to reduce the waste as much as possible. The biological materials, which are non-toxic, can be easily return into the soil by composting. The unnatural materials (plastics, polymers, rubbers) should be redesigned and modernized to save the value and minimize the energy which is needed for materials changing, as their return to the soil will be very harmful to the environment. (Ellen MacArthur Foundation 2015, 7.)

- Diversity as a key strength

Diversity could be the main point which brings the resilience and versatility among various systems. Economies should balance the different types or scales of businesses in order to succeed in the long term. Big organizations bring efficiency and bigger volumes of production to the economy. The smaller companies' purpose is to offer the solution when there is critical and crisis situation in the world. (Lucy & Rutqvist 2015, 1000.)

- Renewable energy sources

In order to reduce or eliminate the company's resource and increase system stability, the circular economy must use renewable-by-nature sources of energy, such as air, water and solar energy. It will additionally stimulate the economy to circulate and be balanced. (Ellen MacArthur Foundation 2015.) This can be achieved by reducing the threshold energy and increasing the usage of solar panels, tidal energy, windmills and other sources of renewable energy.

- Think systematically

In the circular economy, everything should operate as a system and be based on system-thinking. People, producers, businesses and plants are members of different systems, but at the same time they are all connected to each other and have a great impact on the other groups. Therefore, the effective circular economy takes into consideration all systems that exist and work according to its interests. (Ellen MacArthur Foundation 2015, 8.)

- Transparency and real expenses

For the transition to the circular economy, negative external factors must be determined and be transparent and clear. The full costs should be revealed and calculated, as in the circular economy the prices are

the links and messages and they should reflect the real expenses. In circular economy, the shadow economy is not possible. Otherwise, it is the linear economy, not circular. (Ellen MacArthur Foundation 2015, 8.)

## 2.6 Circular Economy Opportunities

In economy, opportunity is considered as the economic growth and its improvement, cost savings, job creation, and innovations. Although, economic growth is the ability of economy to produce products and services for society and measured in terms of GDP (gross domestic product) and GNP (gross national product) indicators. (Investopedia 2017.) All that circular economy can bring to world economy and society. It may give opportunities for both sectors: businesses and governments (policymakers), and as the consequence, to the society.

According to Ellen MacArthur Foundation, SUN Foundation, and McKinsey research (2016), Europe will be able to get 1.8 trillion euros by 2030 just by transiting from linear economy to circular economy. The opposite, keeping up with current economy path may bring 0.9 trillion euros less. The transition to the circular economy will create huge opportunities for such aspects as industrial innovation, modernization, and renewal. Also, the technology revolution may bring up to 3% growth of productivity annually. As a consequence, GDP will grow by 7% compared with current situation, additionally adding the improvement to the employment sector. (Ellen MacArthur Foundation 2015, 10.) The 2030 scenario of circular economy opportunity is shown below, in Figure 6.

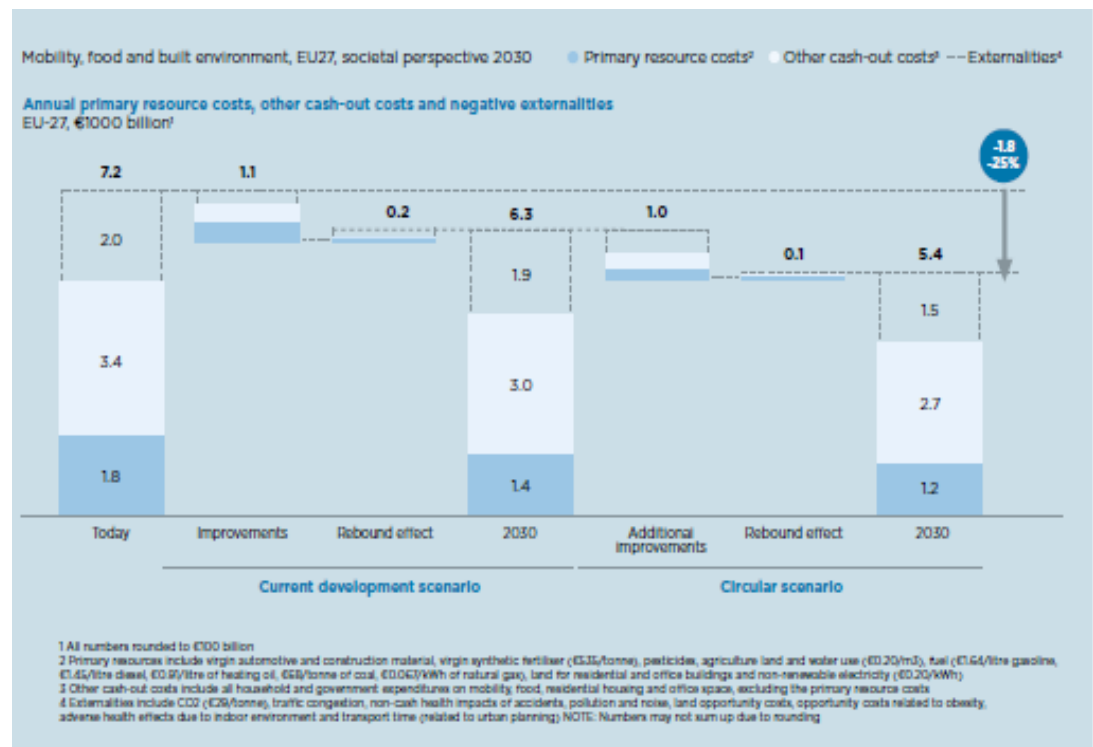


FIGURE 6. The circular economy opportunity – 2030 Scenarios (Ellen MacArthur Foundation 2015)

## Economic Growth

As it was mentioned, economic growth is measured in terms of GDP. So, the growth can be achieved due to the cost reduction of production as circular activities will be increased. It will let us use less resources, and therefore, to extract less raw materials and to spend less budget on extraction. Supply, demand, and prices will be affected a lot as there will be many changes in the output and input of economic production activities. (Ellen MacArthur Foundation 2015, 11.)

Such changes may include the increase in savings and expenses in the result of increased household income. Income will be increased in terms of greater labor compensations. All these together may bring positive effect and change on GDP. (Dedicoat 2016.)

### **Opportunity for Job Creation**

Even though the unemployment in the developed countries is now falling or staying stable, the situation may change in the nearest future. Studies claim that circular economy will bring the opportunities for job creation. Jobs can be created in all industrial sectors with the development of logistics on small and medium enterprises by implementing new technologies and ways of doing business, as well as new types of economy which will be based on services. (European Commission 2017b.) With an increase of new types of services offered by new organizations which are going to fill the available market with circular economy implementation, the new jobs are going to be established.

### **Net Material Cost Savings**

Ellen MacArthur Foundation (2015) has studied that, investments into detailed product-level modeling can give up to 630 billion dollars savings in industries of complex medium-lived products in the EU, by using circular economy concept. For industries with fast moving consumer goods, the net material cost savings might be about 700 billion dollars globally. Also, Ellen MacArthur Foundation considers that UK may save 1,1 billion dollars annually on landfill costs by transiting to 2G Wh electricity, that can provide the necessary soil restoration. (Ellen MacArthur Foundation 2015, 11.)

### **Innovations**

By replacing usual, one-way goods with those, that are “circular by design” and creating the logistical facilities for circular network systems can give extra possibilities for economies and companies to use new ideas at their businesses and, thus, generate new channels of revenues. The advantages may include such aspects as higher labor and energy effectiveness, better technological development, redesigned materials and bigger profits opportunities. (Ellen MacArthur Foundation 2015, 11.)

## Environment

Besides economical and business opportunities, the circular economy gives the possibility to improve the environment. Circular economy promises to reduce carbon dioxide emissions by 48% by 2030 and by 83% by 2050 in Europe, and also reduce 7.4 million tonnes of greenhouse gas emissions by not letting organic waste permeate into landfills.

A circular economy development path could result in a reduction of primary material consumption (measured by car and construction materials, real estate land, synthetic fertiliser, pesticides, agricultural water use, fuels, and non-renewable electricity) by 32% by 2030 and 53% by 2050, compared with today (SUN Institute 2015).

In addition, primary material consumption could be reduced by 32% by 2030 and by 53% by 2050 compared with today's indexes. Primary materials may include construction materials, pesticides, fuel, real estate land and others. Moreover, we have to take into consideration the land degradation and that it costs billions of dollars annually. By moving more biological materials with composting, the circular economy will make the necessity for replenishment with additional nutrients much more less. Organic waste, which is used systematically, can help regenerate the soil and reduce the use of chemical fertilizers to 2,7 times comparing with today. The households could reduce the costs by 16% by 2030, as circular economy is controlling the externalities, that involve pollution of water and air, climate change, land use and the release of toxic substances. (Ellen MacArthur Foundation 2015, 12.)

### 2.7 Circular Economy Opportunities in Business

Profitability is one of the main goals of the companies. The circular economy could help individual businesses achieve the lower rates of input costs in their production and open the new profit streams. There are some ways on how to do it:

- Beer production demands input costs as water, grains, yeast, and energy. Usually, the used materials are thrown away, but what if the company starts to sell the used brewer's grains. It can help to gain USD 1.90 per hectoliter of beer which was produced, which leads to capturing the millions as a profit.
- Another example could be the reduction of costs of mobile phones remanufacturing. Remanufacturing expenses can be less in 50%. In this case, the mobile industry needs to offer the motivation to return the phones and to improve the reverse cycle.
- Also, the high-end washing machines could be leased to consumers instead of selling it. Then washing machines will be affordable for most households, customers would save about third per wash cycle, and the producers would earn a third more in profits, but gaining money for leasing.
- The circular economy concept is also applicable to clothes industry. Clothes manufacturers can collect worn pieces of clothes to produce new items, which reduce the costs of input. Such concept is already used by many companies. For example, in 2013 H&M together with I: CO created the campaign by which anyone can bring their garments that they no longer wear and leave it in any local H&M store. The company takes the gathered textiles to the nearest recycling plant where clothes will be sorted and sent to second-hands or recycled, and from regenerated materials, H&M makes new items that customers see in stores. The last percent of collected materials can be burned and returned into energy. (Hennes & Mauritz 2017.)

The circular economy can give companies the opportunity to be independent of changeable raw material prices, as the transition to circular path involves the usage of more remanufactured materials and less virgin, which eliminates the raw material price dependency and makes the enterprise more stable. Besides this, producers will be less



dependent from natural disasters or geopolitical situations, as decentralized providers offer alternative sources of materials. Consequently, manufacturers are confident in their supplies and there is a lower risk of bankruptcy. (Timmermans 2015.)

The green economy will also create the demand for new business services. With the new system of doing economy there would be needed such services as collection and reverse logistics organizations, that would support products to enter the new system, sales platforms, that will improve the utilization of the goods, remanufacturing and repairing companies, that would give the new life to products.

Customers will be engaged in new ways. Circular economy gives the solutions to firms how to interact with clients on the longer terms. As the life-time of the products is increased, there will be more touch points with the customers, which will bring the better satisfaction both to clients and companies. (Ellen MacArthur Foundation 2015.)

Further, the circular business models will be studied and discussed, which will help to get the full understanding of circular economy adoption for the company level.

### 3 THE CIRCULAR ECONOMY BUSINESS MODELS

The chapter aims to study the circular economy business models and how they can be implemented in real life. The chapter answers the second research sub-question “What are the circular economy business models?” The real-life examples are given in the chapter.

#### 3.1 The Definition of Circular Economy Business Model

Business model estimates how the company does business and how value is built. Business models also help managers to see how their business can be developed and in the which way. (Timmermans 2015, 28.) The business model is a plan the describes the means and methods that a company is planning to earn the revenue which is projected. It sees the business as a system and aims to answer the question “how to survive?”. (Business Dictionary 2017.)

There are several business models that can be used in circular economy mode. The circular business models distinguish from the traditional ones by focusing and taking into consideration the stakeholders interests and creating bigger value for them, concentrating not only on sales. Besides this, circular economy business models are considering the benefits from societal and environmental aspects. It replaces the finite resources with fully renewable ones and keeps the materials circulate as long as possible. Companies should be responsible and extremely involved in the product usage, trying to find the way how to use the good again for each item that is used in production, instead of throwing away. (Antikainen & Valkokari 2016.)

The circular economy business models have their own aspects and can be used both in combination and individually. Its purpose is to help enterprises to improve its resource efficiency, raise the customer value, reduce the expenses and risk, and, of course, make greater revenue.

(Accenture 2014, 13.) Five circular economy business models are shown below, in Figure 7.

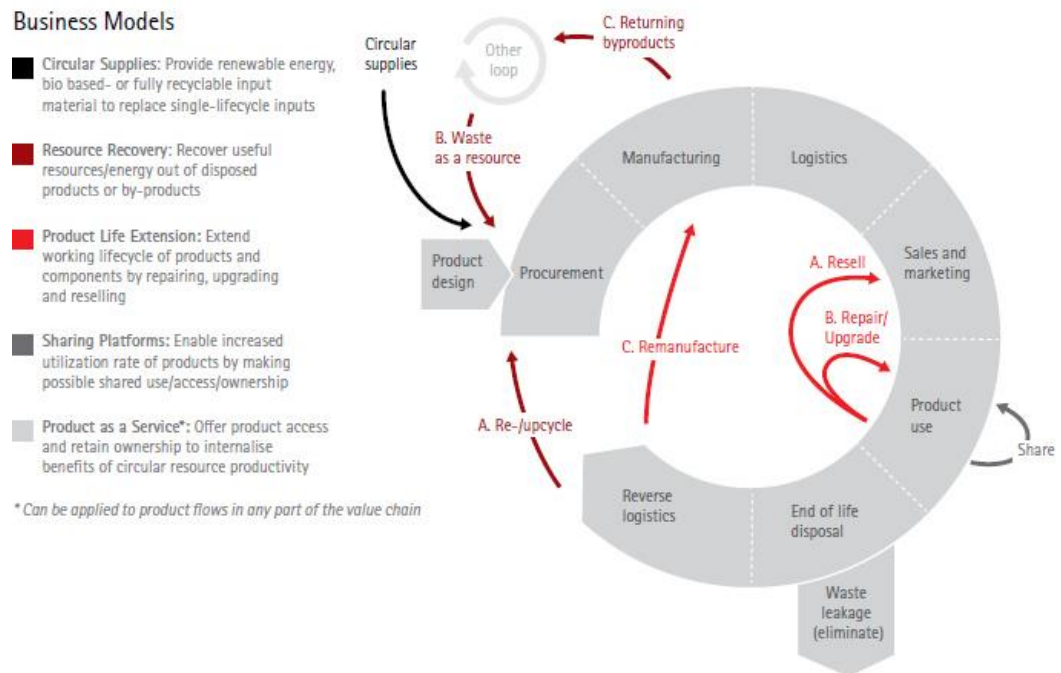


FIGURE 7. Five business models (Accenture 2014, 12)

The Figure 7 shows the five circular economy business models: Circular Supplies, Resource Recovery, Product Life Extension, Sharing Platform and Product as a Service. The principles of the business models will be discussed below.

### 3.2 Circular Supplies

Circular supplies business models operate the best for those companies, which production based on scarce products or with significant environmental footprint. This business model rests on supplies of fully recyclable and renewable materials, which are the base of the circular

systems. Due to that, firms stop using the limited resources by decreasing the amount of waste and inefficiency. (Accenture 2014, 13.)

As a supplier shifts from using scarce resources to more renewable, it creates the opportunity to have the predictable and long-term source of energy and resources, which economically more effective. Organizations that offer its customers circular supplies will be in demand, as producers would like to get an access to circular materials and energy which is unaffected by price rises. Consumers would also prefer the alternative which would be sustainable and comparable on quality and price. (Lacy & Rutqvist 2015, 1001.)

The example of implementing the circular supply business model could be the case of Dutch Company called DSM. DSM moved from the virgin materials supplier to the firm that reuses the stock and provides new environment-friendly materials. The company created the cellulosic bio-ethanol, which is a by-product of co-fermenting sugars received from crops. Biobased chemicals have a great potential to minimize waste and CO<sub>2</sub> emissions to biosphere compared with, for example, fossil fuels. This creation gave the company an opportunity to get a new revenue stream from a feedstock that was before defined as a very low at value. Moreover, DSM claims that this can create up to 70,000 related workplaces. (DSM 2017.)

### 3.3 Resource Recovery

The resource recovery business model concentrates on recovering the included value in goods via innovative recycling and upcycling technologies. Upcycling method is turning an old and used product into something new with a greater value. Consequently, the resource recovery model aims to give materials a new life and increase its level of worthiness and value. This model allows companies to liquidate the leakage of resources and increase the economic value of products. This type of

circular business model would be useful for companies that are producing large amounts of by-products. Waste can be redesigned efficiently from the economic point of view. (Accenture 2014, 13.)

According to Lacy and Rutqvist (2015), there are several advantages of using resource recovery model. First of all, it eliminates the waste management costs, that might be the large item of expenditure. Secondly, it creates the new revenue streams from waste products sales. Thirdly, resource recovery establishes convenient ways to utilize the unwanted goods. Fourthly, such method reduces the impact on our environment by decreasing the demand for raw materials and energy. Besides this, there will be created new touch point between producer and a customer. (Lacy & Rutqvist 2015,1329-1330.)

The real-life example of resource recovery could be the US grocery chain – Kroger. They produce 150 tons of food waste every day. To eliminate such disposal, they turned waste into a clean energy (biogas) which powers Kroger's offices and distribution centers. Also, they follow the “zero waste” concept, planning to reach zero waste threshold of 90% in all company's facilities by 2020. (Kroger 2017.)

### 3.4 Product Life Extension

This type of circular business model aims to extend product life and its assets, bringing companies extra value that would be possibly lost through wasted materials. In this case, products are being redesigned, repaired and upgraded. Such action can help business to get additional revenue and stay stable as products will be economically useful for a longer period.

Product life extension model suits both B2B and B2C segments. For example, such model would be useful for industrial equipment, where capital intensity is high, or for previously used goods markets, such as Avito (Russian e-market for sharing pre-owned products). The durability

and quality are the main product characteristics for the described business model.

Product's life can be extended in several ways:

- Item can be produced to last for a longer time, paying attention to its quality and durability. This method suits to the consumers which want the high-quality product and are ready to pay for it. For example, leather wares, which are already designed with the idea to function as long as possible. (Accenture 2014, 12.)
- Another way is refurbishing. Used products are being restored to look new in order to be sold again to price-sensitive customers. For example, renewed mobile phones are sold to new customers for a cheaper price. (Accenture 2014, 13.)
- The re-market method is similar to previous one. Used items are collected in order to be resold, but products are not being refurbished. Perfect for clients that seeking for a good deal. (Lacy & Rutqvist 2015, 1633-1634.) For example, Fujitsu company launched a program where they take-back used equipment and recycle it, offering then a discount to its customers. The campaign is valid in 27 markets in Europe planning to expand to other regions. (Fujitsu 2017.)
- Upgrading is also one of the ways to extend the product's life. Producer gives new features to the product, upgrading and giving it a new style, instead of repairing and changing the whole item. The target audience would be those, who do not pay attention to the functionality of the product, who is interested more in its style. For example, electronic wares companies can collect the sold equipment and give the new look to the product, by adding new features. (Lacy & Rutqvist 2015, 1632.)
- The last method is repairing. In this case, company fixes the goods and giving back to a customer. This method is suitable for consumers who do not want to change the product and are satisfied

with its performance. For example, the fix of the electronic gadgets which are returned then to its owners. (Lacy & Rutqvist 2015, 1633-1634.)

In addition, this business model creates new phases in relationships with company's clients. Improving the product's quality and functionality will only develop relations between consumer and producer in a positive way, creating high satisfaction, interest, and loyalty from a customer. (Lacy & Rutqvist 2015, 1676.)

### 3.5 Sharing Platforms

The sharing platforms business model works in such areas as shared manufacturing, creation, supply, distribution and consumption. It can be used by different people and organizations. The platform for shared actions can be managed by the local community or bigger network, which is online based. It is an eco-system from the social and economic point of view promoting the idea of sharing of physical and intellectual resources. The sharing platforms model gives the new look on the competitive advantage. (Accenture 2014, 14.)

The sharing platforms model helps those companies which have low utilization rate. Using this model enterprises will get benefits from maximizing the utilization of products and assets, by sharing it. Sharing creates more effective and sustainable use of resources, giving the people, organizations and product owners a platform for communicating and sharing. (Crowther & Gilman 2016.) Customers are getting the access to different markets with various products and prices. This business model shows that the value can be not only in ownership but also in managing and sharing, creating absolutely different revenue streams. (Lacy & Rutqvist 2015, 1910-1917.)

The example of such circular business model can be the BlaBlaCar company, which is a French organization found in 2006 now spread in

more than 20 countries, including Russia, with more than 35 million active users. The idea of sharing formed the company's concept. Now the company is the biggest online ridesharing community, helping drivers and passengers travel together and get benefits. The ride fee is lower comparing with taxi or buses for a long-distance ride. The firm also attracts lots of investors which support the ride sharing idea and maintain company's stable development. (BlaBlaCar 2017.)

### 3.6 Product as a Service

Product as a service circular business model changes the traditional foundations of "buy and own" concept. This business model promotes the idea of leasing the product to the customer. Companies that manufacture large volumes of products and have high operation costs can shift to leasing or pay-per-use approach, generating new profit. Product as a service model pays attention to the product's performance rather than its volume. (Accenture 2014, 14.)

In this business model, customers are tightly involved the producers. Thus, the company may easier innovate and develop its products as they have the better relationship and understanding the clients' wants, needs, and preferences. Leasing makes products more available and accessible for users, cutting the expenditures and creating new revenue streams for producers. By adopting the product as a service business model, the company can reduce the raw material exploitation, energy consumption, and waste generation. As a consequence, this business model operates as the restriction of cost volatility. (Lacy & Rutqvist 2015, 2328-2331.)

The example of implementing the product as a service model can be the concept offered by Michelin company, which is the leading tires' manufacturer. Michelin launched the program offering its customers to not buy the tires, but to rent them and pay for the miles driven. By adopting this program, the firm efficiently sells tires as a service generating the



profit. Also, the company invests a lot into designing the long-lasting tires, which will serve its owners longer than any other tires. (Michelin 2015.)

When the concept of circular economy and its business models are studied, the paper will focus on the circular economy in Russia, its path towards green economy, laws, and regulations, examples of circular economy implementation in other countries.

## 4 THE CIRCULAR ECONOMY IN RUSSIA

This chapter concentrates on the Russian relations with the circular economy, its laws, and regulations, examples of circular economy adoption by other countries and Russian companies.

### 4.1 Current Situation

Today, unfortunately, Russia is considered as one of the most polluted countries in the world. Especially, the situation is worsened by Russia's dependency on raw materials such as oil, gas, charcoal and therefore on industrial production. According to the Ministry of Natural Resources and Ecology of Russian Federation (the latest data was gathered in 2015) (2015), more than 31,5 billion tons of waste were accumulated and recorded in Russia in 2015. This figure can be considered as approximate because of the objective difficulties in the accounting of waste generated many decades ago, as well as the identification of decomposition, dilution, weathering, corrosion, overgrowing and previously accumulated waste. Territorially, the largest part of the accumulated waste is located in Siberian and Ural federal districts (57% and 22% relatively).

Besides this, there are more than 17,000 illegal landfills, which makes with official dumps the area of four million hectares, which is twice bigger than the territory of Israel. (Ministry of Natural Resources and Ecology 2015b.) The utilization of waste is successful only on 30%, 10% of garbage is recycled, which is a very low rate. However, in megapolises, such as Saint-Petersburg, Moscow, Kazan, there exist mechanisms for waste paper and glass collecting and processing, which makes the waste issue less urgent. (Greenologia 2017.)

Analyzing the figure down below (Figure 9), we can see that the generation of waste is continuing to grow, but slower than the year before. The growth of garbage can be caused by increased volumes of industrial

production based on Russian territory and bad regulations from government sides.



FIGURE 9. The dynamics of waste generation in Russia (Ministry of Natural Resources and Ecology 2015b)

Besides waste issue in Russia, uncontrolled and illegal logging of forests is carried out causing the global environmental problems of entire regions of Russia. Most of these are observed in the Far East and the north-west of the country. Deforestation is held not only for forest industry but also for clearing the land for future mining. (Greenologia 2017.)

Even though the circular economy can be a solution to current ecological, social and economical issues, the Russian economic model and plan contradict with the closed-cycle concept. The Russian economy is based on the extractive and manufacturing industries, which causes large volumes of production and consumption of raw materials. The reduction of resources consumption may put Russian economy into degradation

phase, which can cause crisis and inflations. If circular economy is not appropriate for industrial sector (from Russian government point of view), is it so for other fields?

Today, the circular economy in Russia is not used as a method of creating economic models, forecasts, and plans, but there are separate initiatives that can be attributed to the concept of a new, circular direction, which will be examined later in research.

#### 4.2 Laws, Regulations, Barriers

At the moment, the circular economy has two strong drivers: governments and corporations. In this chapter, it will be studied how Russian government regulates ecological and economic issues in the country, and does it create some barriers for companies that want to adopt the circular economy concept in their production.

From 2012 Russian government started preparing the plan for improving environmental conditions on the territory of Russian Federation. This plan includes laws and arrangements, that are supposed to clean most of the water resources, to control the deforestation, to introduce cleaning mechanisms for all manufacturing plants across the country, to improve the environmental awareness among citizens, to manage permissible amounts of waste and its utilization till 2030. Some of the laws are valid already today, however, not all of them are accomplished according to the set regulations. (Ministry of Natural Resources and Ecology 2015a.) Most of the waste is still going to landfill including non-organic waste.

However, since 2014 municipal nature-use committees of different cities in Russian Federation has established “Ecomobiles” for gathering the hazardous waste from citizens. Ecomobiles collect such waste products as mercury lamps, expired batteries and accumulators, computer and office equipment, household chemical waste and chemical substances, waste oil, expired drugs, automobile accumulators, tires and much more. Only in

Saint-Petersburg in 2016, more than 289 tons of hazardous waste was collected. This is 1,5 times higher than the results of 2015 and more than two times the results of 2014. Thus, in 2016, 46 tons of mercury lamps, 2,3 tons of medical thermometers and other mercury devices, 49 tons of batteries and small batteries, 40 tons of office equipment, computers and household appliances, 5,5 tons of medicines, 14,4 tons of chemical waste, 128 tons of automobile tires, three tons of used oils, more than 0,5 tons of automobile and other batteries have not ended up in dumps. (Saint-Petersburg Natural Use Committee 2017.)

In Saint-Petersburg, mercury lamps are rendered harmless at the St. Petersburg Multipurpose Environmental State Unitary Enterprise "Ecostroy" (SPbGUP "Ecostroy") at a demercurization facility. As a result of decontamination of mercury lamps, cullet, aluminum plinths, and mercury-luminophores sludge are formed, which are transferred for use to specialized enterprises. Mercury is extracted from the phosphor, which is then used in industry. The used batteries (batteries and accumulators) collected in the territory of SPbGUP "Ecostroy" are transferred to the specialized enterprises for safe disposal by recovery and recycling of heavy metals and iron. Household, computer and office equipment is disassembled resulting in obtaining secondary material resources (scrap and waste of printed circuit boards, plastic chips, metal), suitable for further use in production. Chemical waste expired medical drugs and syringes are sent to specialized enterprises for neutralization. Automobile accumulators are sent for recycling with the extraction and reuse of lead; the electrolyte, drained from the spent batteries is sent to specialized enterprises for neutralization. Automobile tires are sent for further processing and use for enterprises engaged in the manufacture of rubber products. (Ecostroy 2017.)

Such examples are more common for larger cities, it is still uncommon for a major part of Russia. Besides this, gathered waste is still less than the overall amount of waste which is produced in the country. Speaking about

barriers, we should understand for whom illegal landfills are beneficial. According to Moscow Department for Combating Economic Crimes, the shadow turnover of landfill money is about \$ 1 billion a year. By the degree of criminalization, this business can be compared with the drug trade. The construction of waste plants could contribute to solving the problem, but this development clearly contradicts the plans of landfill holders. In the waste business, the major income comes from the shelter of imported wastes. (Moscow Department for Combating Economic Crimes 2017.) In the documentary, there can be different figures comparing with reality. For example, the fixed number of arrived trucks with garbage was a thousand, but in reality, there were 10 thousand trucks. Also, hiding the real amounts of processing waste helps organizations to pay less taxes and gain bigger profit. Most of the generated money goes to corruption. (RIA Novosti 2010.)

All in all, it can be said that the government is trying to help to fight with produced waste launching campaigns for collecting the garbage, making new laws, however, the level of corruption is high and business is highly interacted with politics. Both enterprises hide each other following own interests.

#### 4.3 Examples of Circular Economy in Russian Entrepreneurship

As for now, the circular economy is rather driven by individual initiatives, than followed by a great majority of people. In this chapter, several companies on Russian market will be studied that use circular economy principles in their business.

The first company is a FIRO-O enterprise which has operated more than 20 years on the Russian market. The company's production is located in Leningrad area and operates as a sawmill. In 2014, the company modernized its whole manufacturing and now they are one of the biggest deep wood processing organizations. (FIRO-O 2017a.) The FIRO-O sees

its mission to become a leading supplier of environmentally friendly high-quality wood products, through the most modern technologies, as well as production, logistics, and services that are applied according to the world standards. The company invests heavily in the development of its own logging unit, which corresponds to the world standards of the plant of deep wood processing. The company claims that they use every piece of wood in their production, utilizing even the dust and wooden flinders. (FIRO-O 2017b.)

OptiKom is a great example of green business in Russia. The company is a manufacturer, supplier of integrated solutions and expert in the field of packaging, office supplies and household goods for businesses. They introduce advanced technologies in the field of goods and services, ensuring the stable operation of customers, creating a culture of conscious consumption and increasing the environmental responsibility and awareness in Russian business. In production, the organization relies on the principles of sustainable development and closed-loop manufacturing. (OptiKom 2017a.) The firm strives to ensure that production activities have a minimal negative impact on the environment. In accordance with the company's environmental policy, it implements projects in various areas: from the production of environmentally friendly packaging to improving the energy efficiency of the office, from choosing responsible suppliers to cooperation with environmental organizations. Mainly, company focuses to offer its clients safe products for green cleaning, office goods, kitchen wares and many more. (OptiKom 2017b.)

Also, the company's office constructed according international environmental criteria. Usage of LED lamps, which significantly reduced power consumption, water saving is achieved using special nozzles on mixers, which limit the water flow. For several years, the program for collecting waste paper has been going on. In each office, specially marked containers are installed where employees bring paper waste. The collected waste paper is sent for recycling - it serves as a raw material to

produce packages of molded paper fibers, which are manufactured and sold by the company. Separately in the office, other waste is collected: plastic and glass bottles, aluminum cans, print cartridges and spent electronics - that can be recycled. Recycled materials reduced the consumption and purchase of new materials, which therefore decreased the expenses. (OptiKom 2017c.)

Another example is a charity second-hand store “Spasibo” which was established in 2010 in Saint-Petersburg. Its mission to develop charity organizations in Russia, attract investments into charity and reuse the textile materials that no longer wanted by first owners. “Spasibo” accepts clothes, books, fabriques, toys, equipment which will be recycled or given to those who needs them. (Second-hand Store “Spasibo” 2017a.) The store has installed more than 90 containers across Saint-Petersburg where citizens can leave unnecessary clothes and other goods, which next will be processed, recycled or sent to shelters, orphanages, charity organizations and so on. Recycled materials are given to textile manufacturers which will produce new pieces of clothes. (Second-hand Store “Spasibo” 2017b.)

The last but not the least is Baltika Brewery, which is now a part of Carlsberg group. Baltika was found in Saint-Petersburg in 1990 and in 1992 company started the beer production. Reducing the impact on the environment is one of the key priorities for Baltika in ensuring sustainable growth. Depletion of natural resources, increased waste and land degradation affect the business of Baltika Brewery and the sustainable development of the whole society. Company understands that the activities of the company depend on the health of the environment. Thus, enterprise is looking for ways to minimize its impact on the environment. (Baltika Brewery 2017.)

The company is trying to improve the water consumption indicator by optimizing the operation of the equipment washing systems, setting up the



recycling and re-supply systems for technical needs. "Baltika" conducts waste water treatment both on its own and on municipal sewage treatment plants. The branches in Samara, Khabarovsk, Yaroslavl and Tula have built powerful biological treatment facilities, including several technological stages of purification: aerobic, anaerobic and other systems. In Samara, company has installed the only cleansing water flows system that provides water resources consumption reduction due to re-purification. The biogas project is one of the most successful energy efficiency initiatives of the company that aims to decrease energy consumption. Biogas is a by-product of biological local treatment facilities, which the company uses as an alternative source of energy for the operation of boiler houses. This allows to reduce the costs of thermal energy, reduce CO<sub>2</sub> emissions and save natural resources. At the moment, biogas is used in factories in Samara, Khabarovsk, Yaroslavl and Tula. (Baltika Brewery 2017.)

Besides this, Baltika Brewery optimizes its own activities, decreasing the waste production and increasing the usage of recycled materials. The main type of waste generated in the brewing process is the beer beet. "Baltika" uses the systems for processing raw crusher into a dry product, which is then used as a feed additive in dairy and meat cattle breeding. Additionally, other biological waste such as spent yeast and grains are sent to farm organizations for feeding the breeding animals.

According to annual report in 2016, sustainable development plan helped company to reduce CO<sub>2</sub> emissions by 16% and water consumption by 22% comparing with 2010 (Baltika Brewery 2016, 3). Also, firm started promotion of recycled materials usage in production and it motivates consumers to direct waste for processing, and to increase the percentage of remanufactured materials in the package. In 2016 Baltika Brewery provided 78942 jobs across the country. (Baltika Brewery 2016, 11.)

As it could be seen, there are several companies that follow sustainable development principles in their businesses in Russia, helping to decrease

raw material consumption and providing circular economy awareness among citizens.

#### 4.4 Circular Economy in EU

Contrasting to Russian Federation, European Union has already set and use an action plan for shifting to the circular economy. In 2015, they published a plan that will help Europe to move towards circular economy, strengthening the competitiveness, creating new jobs and solving the import problems of European Union. (European Commission 2015.)

The set plan aims to accomplish all necessary events and shift to the circular economy model by 2020. According to the published strategy, Europe is planning to recycle 65% of municipal waste and 75% of package waste by 2030. Also, it is planned to eliminate landfills as much as possible, promote instruments that would discourage landfills, promote re-using and re-cycling among citizens, motivate producers to produce and sell greener goods on the market and use recycling as an essential part of the business. (European Commission 2017b.)

Implementation plan focuses on different areas and discusses the necessity of circular economy. In 2016 the eco-design working plan was adopted to make producers redesign products' packages in order to make them environmentally-friendly and possible to be recycled. Food waste is another field that EU wants to focus on. European Commission has established several actions that should help to fight the food wasting, facilitating food donation and using former food stuff. In addition, it is planned to turn waste into the energy, producing biogas that will be a great source of energy. The hazardous substances will be no longer used in the equipment production. It is planning to avoid more than 3000 tons of hazardous waste annually. The prolonged life of products will also help to reduce the energy consumption. Also, EU is encouraging to use

secondary markets (second hand, reselling) instead of wasting. (European Commission 2017b.)

The water saving and separate garbage collection actions have been employed long time ago bringing many benefits to the society. Companies, in their turn, are also experimenting with the green economy and started using sustainable growth principles today. As it has already been mentioned, Swedish clothes giant H&M (2017) launched a campaign in order to gather the unwanted garments for future recycling (Hennes & Mauritz 2017).

Another Swedish enterprise IKEA (2017) operates according to circular economy principles. The company plans to switch to renewable electricity, and by 2020, to produce just as much electricity as consumed during the IKEA's work, and to purchase all timber only from the responsible forestry enterprises. The IKEA Group and the IKEA Charitable Foundation also pledged to invest up to 1 billion euros in measures against climate changes. (IKEA 2017.)

Another example is an English brand called The Body Shop. In its manifest, they defined their mission and aimed not to exploit, but enrich our planet, its resources, and diversity. (The Body Shop 2017a.)

Company's sustainable development plan is working on such aspects as the environment impact decreasing, of each store which is opening under the Body Shop brand, product package innovation, the reduction of CO<sub>2</sub> emissions and energy consumption, the increase of recycling, and therefore, to shift fully to renewable sources of energy. Investment into these areas will provide company to save on the constant purchase of raw materials and cut the expenses on consumed energy. (The Body Shop 2017b.)

All described actions make Europe one of the most ecologically sustainable areas in the world. The circular economy will bring benefits to all European industries, citizens and environment.

The theoretical part is the base of the research. The reader is now understanding the concept of circular economy, its principles, business models, has an idea of how companies can implement circular economy and how a government is influencing circular economy development in the country. Next, the study will focus on the empirical part of the research, including the circular economy development plan for the Russian case company.

## 5 EMPIRICAL RESEARCH AND DATA ANALYSIS

This chapter aims to make a reader understand the empirical part of the research that was accomplished for the study and present the analysis of the gathered data. The empirical part includes six structured interviews with six Russian companies, providing the information concerning the current awareness of circular economy in Russia among companies, its opinion towards the new type of economy and outcomes. The results of the interviews and analysis are presented in the paper. Questions and interviewees can be found in the Appendices.

### 5.1 Formulation of the Empirical Research

Empirical research is based on the observable and measurable facts. Empirical data can be gained from the experience and observations, rather than from beliefs, theory, and opinions. Empirical data aims to answer the research questions and helps to develop new ideas for further research. (Punch 2016, 2-3.)

As it has been mentioned, there exist two research methods that can be used for research, which are qualitative and quantitative. The qualitative method is mainly exploratory type of research, aiming to get the idea of underlying reasons, opinions, trends, motivations. Examples could be individual interviews, group discussions, own observations. The quantitative method focuses on numbers and statistical data, and often generalized from big amounts of people. The examples of quantitative research method are surveys, telephone interviews, online polls. (Thomas 2003, 1-2.)

In the study, the author uses the qualitative research method instead of quantitative method. Individual interviews with companies' representatives were conducted, in order to understand circular economy trends on the Russian market, companies' awareness and how circular economy is implemented in Russian companies.

The first interview was conducted personally with FIRO-O representative. Researcher chose to ask questions directly and interviewee agreed to answer interview questions by face-to-face meeting. Interviews with OptiKom, Baltika Brewery, Second-hand Store “Spasibo” and Spivak Companies were conducted via email and included questions about circular economy awareness, the usage of its principles in firms’ business, how circular economy has changed company’s development and the companies’ opinion about the future of circular economy on Russian market. The interview with the representative of Rogachev Milk Canning Plant was made as an individual interview during the personal meeting, where all mentioned questions were answered.

## 5.2 Data Collection

The data collection chapter represents detailed information about the data collection process. Figure 10 below describes the data collection steps that were made during the thesis writing process.

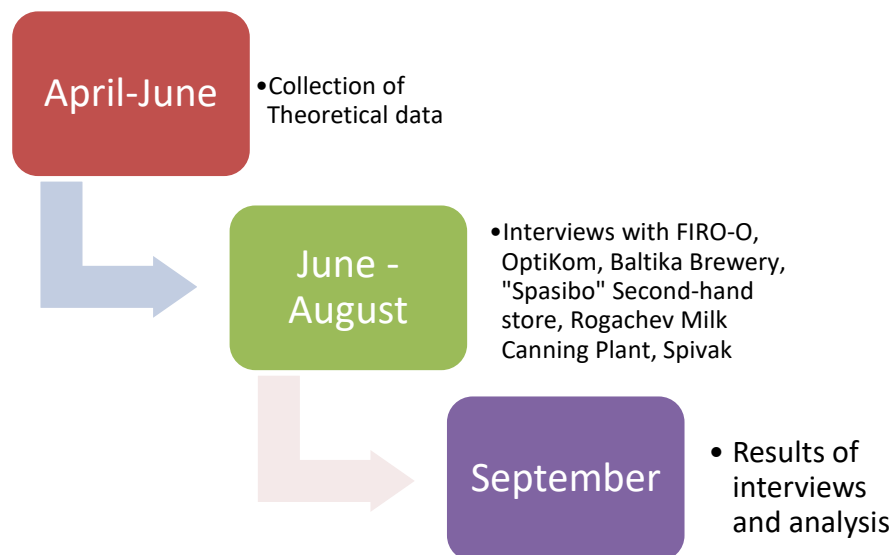


FIGURE 10. Data Collection Process

The thesis writing process started during the Spring 2017. The first step of data collection process aimed to gather all possible information about the circular economy, its business models, the circular economy situation in Russia, European Union and in companies on Russian and world markets. Afterwards, it was vital to create the interview and find Russian companies that would answer the questions and actively participate in the interview. Among all chosen and contacted companies, only six of them agreed to take part in the interview, others denied the application or have not answered. Two of conducted interviews were personal meetings, others were conducted by email. Personal interviews took about 30 - 60 minutes and gave a more personal point of view about the current issue. Email interviews were answered from one week to one month. Questions for interviews were sent to companies during June – August 2017 period. The organizations' replies are used as the information source and base in the research.

### 5.3 Data Analysis

Data analysis chapter analyzes the gathered data from the held empirical research. Firstly, the analysis of the FIRO-O Company interview is described and presented. Secondly, the OptiKom interview analysis is introduced. Then, the outcomes of the interviews with Baltika Brewery, Second-hand Store “Spasibo”, Rogachev Milk Canning plant and Spivak Company are presented and analyzed. For all companies, there were seven questions prepared all in Russian language and translated then in English for the research by the author.

#### 5.3.1 Analysis of the FIRO-O Company Interview

During the personal meeting, all seven questions of the interview have been answered. Interviewee 1 gave the opinion about the circular economy and its future in Russia. Being on the wood-processing market for more than 20 years helped company to gain recognition and built

strong relationships with its customers. Today, FIRO-O provides more than 200 product pieces for its clients. Now, the company is being the leading deep wood processing company on the Russian market, covering several geographical areas, such as European part of Russia, Baltic countries, Finland and Belarus.

As Interviewee 1 has told, the company is aware of the circular economy model and they started to use its principle about three years ago, when they renew the production process and upgrade the wood processing plant. Concerning the circular economy principles that are in use in manufacturing, FIRO-O CEO described the process of production. Firstly, after the cutting the trees, company plants the new ones, that would be used in the future. The cut trees are divided into several categories: the biggest ones go for house and building constructions, smaller ones go for production of logs and boards. The wood which is left after mentioned production is intended for firewood. The sawdust from the processed woods will be used as goods for pet stores, for example as tray fillers.

Also, the company strictly controls the amounts of forest, energy and water consumption, and don't consume more that they can reproduce, planning to shift fully to renewable sources of energy. Circular economy concept helped company to review its relations towards waste.

Interviewee 1 states:

After understanding of how we can use waste in our production, we expand our product line, therefore expand our flows of profit and attracted more groups of customers.

Such renovation has helped company to increase the profit almost by 40% and create about 25 new workplaces in the company.

Last part of interview was concentrated on the future of the circular economy in Russia. Interviewee 1 considers the circular economy as the only way of economy in future, however, agreeing that in Russia it may



take more than 20 years to make understand people, government and producers the necessity to shift to circular economy model. Besides this, he pointed out that the government should pay more attention to ecological problems and stop participating in the mining race. It is important to establish new laws that would make producers care about what they are leaving after manufacturing. (Interviewee 1 2017.)

### 5.3.2 Analysis of the OptiKom Company Interview

Interview with OptiKom company was conducted via email and took about three weeks, in order to gather all the necessary information. Company designs, produces and delivers office and household equipment, being the experts in eco-packaging and, also, company uses advanced technologies to maintain sustainable development. Every day, the firm is delivering more than 1200 orders for its customers all over Russia.

As Interviewee 2 said, the company uses principles of sustainable development for many years, creating the image of the company, that can be trusted. One of the main company's missions is to form a culture of conscious consumption and increase the environmental responsibility of Russian business.

Concerning the principles, Interviewee 2 states:

As we are also producing our products, we are trying to use most of the materials we purchase, the used products are going to be recycled and some of the waste is sold to other companies. Most of our packages are biodegradable, so they are not harming our environment. Also, we strictly control energy consumption by using only Led lamps in our offices that help to reduce energy consumption.

The company uses only recycled paper in its product manufacturing, which allows the packaging of molded paper fibres to compete in price with

plastic products. In addition, it also has ecological advantages: less electricity and water are used for making products from waste paper than to produce goods from primary paper. Packaging from molded paper fibers is biodegradable, and in the presence of a separate waste collection system, it can be recycled into new paper products. The production is located in the Moscow region, which minimizes the transport trail and support the Russian production.

Interviewee 2 also mentioned that after starting controlling the energy and water consumption, the expenses on these issues have been decreased. Also, selling unused or used materials to other companies gave the an opportunity to create a new channel of revenue. As it has been mentioned before, they spend less energy by using molded paper fibers in production. Interviewee 2 wrote that he is not sure if circular economy has improved its business, as from the very beginning they started using the strategy of sustainability.

Interviewee 2 considers that it is important to start using circular economy principles today. If companies start paying attention to such aspects as recycling, redesigning, it would probably help in future, but for now the Russian companies are more linear economy oriented. Interviewee is hoping that step by step Russia and Russian businesses will transfer to the new level of ecological consciousness and ways of doing business. (Interviewee 2 2017.)

### 5.3.3 Analysis of the Baltika Brewery Interview

Interview with Baltika (Interviewee 3) was made via email as the previous interview and took about a month for an interviewee answer all questions. It was prohibited to mention the interviewee's name, so the Department of production warehouse management and negotiable packaging will be only introduced.

Baltika is being number one beer brand on the Russian market since 1996, and being one of the most successful Russian companies. After becoming a part of Carlsberg International Group, Baltika received 13 billion dollars investment into the Russian beer industry development. The company's representative is aware of circular economy term saying that they are trying to reduce the production impact on the environment and ensure sustainable growth. In the 1990s, Baltika became one of the first Russian companies that has received an international quality certificate ISO 9001. Since that, the quality management system of the company has been regularly maintained, improved and developed.

At the moment, Baltika acts according to the energy management system ISO 50001, quality management system ISO 9001, safe food products management system ISO 22000, ecological management system ISO 14001 and labour safety management system OHSAS 18001, that are applied according to the world standards. One of the main company's goals is to be the first environmentally responsible company among Russian brewers and thus they undertake everything to constantly improve and advance the environmental management system.

Interviewee 3 stated that the usage of processing system of raw grains into a dry product, is used as a feed additive in the dairy and beef cattle, which helped company to gain new customers and profit from selling the feed additives for farm industry. Baltika is planning to launch a campaign motivating beer consumers to return used bottles and cans back to Baltika to receive the monetary compensation. Therefore, Baltika will use these gathered materials in future production of beer packaging.

Interviewee agreed that the circular economy principles allow company to create new workplaces, recude CO2 emissions by 16% and water consumption by 22% in 2016, reduce waste production on plants, gain Cradle to Cradle certification of its products. Also, it is planned to reduce significantly the volumes of produced waste by taking special measures to

prevent its formation by reducing, reprocessing and reusing. Besides, four Baltika plants are using biogas producing it in the process of wastewater treatment at treatment plants.

For the last part of interview questions, company's representative answered, that it is important to look for alternative solutions for upcoming troubles. It is understandable now that previously used strategy is not up-to-date anymore. Russian producers should take into consideration new ways of doing business. Also, it has been mentioned that with the help of government it might be easier for companies to shift to circular economy model. Circular economy's prevalence in Russia may be boosted by big corporation, that can attract attention of larger amount of people. (Interviewee 3 2017.)

#### 5.3.4 Analysis of the Second-hand Store "Spasibo" Interview

Interview with "Spasibo" Second-hand Store was conducted by email. Questions were answered during two weeks. Interview questions were answered by personnel from the Department of Business Development – Interviewee 4.

Store was established in 2010 in Saint-Petersburg and is being one of the first charity stores in Russia. The main goal for "Spasibo" is make unwanted things useful for those people, who need them. Clothes of good quality are sent to other charity organizations or sold, the bad quality garments are being recycled and sent to textile manufacturings. 'Spasibo' is a self-financing organization.

First the company's representatives were not sure what circular economy means, but after researcher's explanation, they agreed that use circular economy principles in their work. However, company does not cope with environment directly and its main mission to help society with items which other people no longer want or need. Interviewee 4 said that delivering of recycled materials to textile companies is an extra source of revenue for

company, but brings only 5% of all profit. With the increase of collected clothes, this number can be increased, but for now it remains stable, as company has not got a massive recognition among citizens.

Interviewee 4 is hoping that companies and people will be more aware of circular economy advantage, recycling necessity and environment protection, saying that government should be more active motivating citizens and producers to be more responsible for footprint they are leaving. (Interviewee 4 2017.)

### 5.3.5 Analysis of the Rogachev Milk Canning Plant Interview

The fifth interview was made as a personal meeting with the head of Logistics Department of Rogachev Milk Canning Plant – Interviewee 5. The plant is being one of the biggest milk products producers among of CIS countries. Company specializes on the canned milk and condensed milk production. Produced products are canned milk, animal oil, whole milk products, dry dairy products, cheese, baby foods. Interviewee 5 admits that he is aware of circular economy topic and its principals are implemented on different stages of production in order to increase resources' value such as milk, water and etc.

Company operates in food industry, therefore there is always a by-product at the output. By-products are used as raw materials for the processing industry, for example, company uses whey (a by-product of cheese production) to produce biogas which will be used as a source of energy. Interviewee 5 is sure that circular economy has helped company to optimize the labour economy, significantly reduce resource consumption, decrease industrial waste and increase investment attractiveness.

In Interviewee's 5 opinion, it is every producer's own choice to accept circular economy model or not, however, if competitors start using this concept, it may happen that it may become a reason of company's failure. In Russia, circular economy has not constant development. The new

concept is represented by few companies on the market. At the moment, at the legislative level, it has not been discussed to introduce circular economy model, thus, the vast majority of the enterprises operates according to linear economy rules. (Interviewee 5 2017.)

### 5.3.6 Analysis of the Spivak Company Interview

The last interview was made with Spivak Company representative – Interviewee 6 – Business Development Department. Interview was conducted via email and took one week to accomplish. Spivak Company is a Russian manufacturer of natural cosmetics and handmade soaps made only from natural and organic ingredients without adding artificial fragrances, preservatives, dyes. Company uses only essential oils, base oils and natural herbs.

The concept of circular economy was unknown for Spivak representative. Interviewee 6 admitted that she has never heard about such economy model. Even though, company is treated as eco-friendly and uses only natural resources in production, company has not started operation according circular economy principles. However, most products are handmade which does not require big amount of energy consumption. Most packages are made from plastics as it is cheaper for company. (Interviewee 6 2017.) The last three questions were not answered by Interviewee 6 due to unawareness of circular economy topic.

To conclude, two of the six companies did not know about circular economy concept. Four companies have already started using circular economy principles in their business, which helped companies to expand product line, attract new customers and investments, reduce expenses and gain new sources of profit. Even though, all companies are from different industries and have different purposes, in each case circular economy can be applied starting from energy saving to designing products foreseeing its end of product-life.

## 6 DEVELOPMENT PLAN

After theoretical part has been studied, such as concept of circular economy, its principles, business models, it is time to create a development plan for the case company. The development plan chapter goes after empirical research and data analysis and consists of subchapters that gradually develop how circular economy can be implemented in the case company. Firstly, the case company will be introduced. The circular economy principles that are currently used by the company will be studied. Secondly, the different circular economy models will be applied to the case company. Finally, other company's possible improvements will be discussed.

### 6.1 Case Company Introduction

The case company is the Russian firm called FIRO-O, located in the Leningrad oblast close to Saint-Petersburg and Vyborg. The company was formed in 1995 and is Russian-Finnish manufacturer. The enterprise operates in logging and timber industry, being the leading company in deep wood processing field in Russia. In 2014 the company's production was fully renewed and company started utilizing circular economy principles in its businesses. Since the organization is present on the market for more than 20 years, it has gained wide recognition and built strong relationships with its customers. Now, FIRO-O has a wide product range and provides more than 200 wooden product pieces for the clients, operating on several geographical areas, such as European part of Russia, Baltic countries, Finland and Belarus.

The volume of logging products is 80,000 m<sup>3</sup>/year and the volume of sawmill production is 20,000 m<sup>3</sup> per year, which is considered as one of the best results among Russian companies on wooden market.

Woodworking output makes up to 15,000 m<sup>3</sup> annually. The main company's mission is to become the leading wooden company providing

ecological and high-quality wood processing products by using advanced technologies for manufacturing, logistics and services. Company aims to meet established world standards in business and wooden industry.

As it has been mentioned, company started using the circular economy principles after total renewal of the production. It is highly important for company to make its production circular; therefore, they plant new trees after cutting them for manufacturing. The cut trees are divided and used for different purposes. The large woods go for the house and building constructions, smaller ones go for production of the logs and boards. The wood pieces which are left are intended for firewood products. The sawdust from the processed woods will be used as goods for pet stores, for example as tray fillers.

The development plan is intended to suggest how used circular economy principles can be developed and improved, discussing the opportunity of circular economy in the case company. The five circular economy business models will be implemented according to firm's industry.

## 6.2 Action Plan for the Case Company

After theoretical part and case company are represented, it is time to suggest how case company can improve its production and path towards circular economy. Action plan will be based on five circular economy business models that were previously studied in the research. Business models will be applied to the case company and the researcher will discuss how else enterprise can improve its circular economy sustainability. The following subchapters will apply each circular economy business model to a case company explaining which model will be the most advantageous one.



### 6.2.1 Circular Supplies

As circular supplies business model is based on constant circulation of renewable and biodegradable resources in the production, for this business model company needs to find the materials that would be easy to recycle and non-toxic, which will keep the circular production flow.

FIRO-O's manufacturing is based on one limited but renewable resource, which is wood. Wood products are intended to be more environmentally friendly than other unnatural products, as wood is being natural, recyclable and recoverable material. As the company bases its production on recyclable resources, it creates the opportunity for the firm to have the predictable and long-term source of energy and resources. This way is economically more effective. Company needs to focus on using only biodegradable materials in its production (for example, only wood), so that there will be less dependency on the resource supplies and the cost of materials. Company already uses only its own wood, so that they do not need to depend on alternative materials supplies.

The progress of the modern wood-processing industry is successful due to the use of inexpensive binders based on formaldehyde. They are much cheaper than alternative resins (emulsion PVA, epoxy) and at the same time provide acceptable strength parameters. However, their main "dignity" is the containment of phenol and formaldehyde. In this case, any resins and glues contain these poisons. Phenol and formaldehyde which are contained, for example, in glue, have a very harmful effect on environment and human. In case of inhalation of such poison, it may cause a burning sensation, cough, dizziness, headache, nausea, shortness of breath, loss of consciousness and vomiting. Formaldehyde glues can be replaced with organic isocyanates. Isocyanates form a chemical bond with lignin and wood pulp. This provides particularly strong adhesion, and water resistance is the same as phenolic binders have.

### 6.2.2 Resource Recovery

In Chapter 3.3 we found out that resource recovery business model optimizes the product leakage and aims to gain the value from the production waste. The wood-processing industry consumes a lot of wood material and a large amount of waste remains. Twenty percent of the waste comes from the logging stage, as well as from forty to seventy percent of the waste is left as a result of wood raw materials processing (Wood-Prom 2016).

The construction waste has one of the highest volumes in Europe and Russia. Only in Europe, from construction and demolition waste creates the volume of 500 million tons annually. The useful and valuable resources are often not identified. The improvement of waste management in this area would play a major role in the circular economy development. (European Commission 2010.) In Russia, the volumes of construction and demolition waste are even higher, as lots of construction processes are uncontrolled and waste management is not utilized.

Construction industry is being one of the main customers of FIRO-O products, as the company supplies construction firms and it's the biggest percentage of the company's profit. FIRO-O needs to find ways to redesign and sell wooden products for construction to keep circulating the valuable materials as long as possible.

The wood-processing waste can be used firstly for recycling, and afterwards for energy generating. Energy optimization may play a key role in price establishing and manufacturing process. The company can consider the returning its products back for maximizing the value for the longer period as an alternative.

### 6.2.3 Product Life Extension

In Chapter 3.4 we have discussed that product life extension business model aims to help firms to extend the lifecycle of products and its assets. The product value that can be lost with the waste instead is reformed and improved by upgrading and finding new ways to use the production waste.

Branches, bark and green mass can be used in the production.

Processing the crushed bark and green mass of coniferous trees (pine, fir, cedar), essential oils can be obtained, which are then used to create medical laps and balms, and coniferous extracts for baths and fir (taiga, Florentine) water, used both for medical and industrial purposes. The use of Florentine water in processing green coniferous mass helps to reduce the cost of the clean water required for the manufacturing. The green mass of deciduous trees, bark and small branches after grinding are suitable for use in the agricultural sector. It can be used as a mulch, which is a component for compost pits. After separation from the boiled green mass and small uncoated fractions of oils, the residual product - condensate (bottoms) - is a valuable component for creating a coarse, fiber-rich feed for livestock and poultry. The logs and stumps can be used in the industry for processing into the chips, which can then be used for the needs identified in the specific region (for heating, for agricultural tasks, for solving certain issues of communal and agricultural enterprises). Lump waste, scraps - waste wood, which is the product of carpentry and furniture manufacturing. Relatively long lump waste is suitable for the production of the middle elements of carpentry boards, shields from racks, hollow shields used in the erection of panel buildings.

Chips are recyclable material obtained in both sawmills and wood processing. They can be used in the production of fiberboard, chipboard, container board, cellulose and hydrolytic alcohol. Recently, chips are actively used by landscape designers for decorative mulching of personal

plots, agricultural farms for mulching garden and vegetable ridges and trunks of fruit trees and ornamental trees.

In addition, the shavings are used by agrarians, protecting the soil of beds with plantations from weathering and drying. Shavings can also be applied in the greenhouses to create the necessary temperature conditions. The usage of this type of timber in the barnyard can be applied as a loose litter. During thaws in the winter, utility organizations take shavings as an absorbent material to get rid of the forecourt and clean the market sidewalks from puddles and mud.

Most of the wood waste can be exploited in the production of charcoal produced by pyrolysis without access to oxygen. Raw materials from hardwoods are used for the coal grade A manufacturing, soft and hardwood - grade B, softwood, hardwood and coniferous - grade B. Any residual wood is suitable for fuel briquettes production which is obtained from sawdust.

Above mentioned options may help company to find new customers in different sectors: from cosmetical firms to utility organizations. The wider product range will create more revenue flows.

#### 6.2.4 Sharing Platform

Sharing platform business model was presented in Chapter 3.5. This model promotes an online platform for collaboration among users of the company's products. It can be either individual customers or whole organizations. FIRO-O company offers its main products via its website providing the product range catalogue. Other wooden items, such as shavings for tray fillers, are provided directly to interested organizations. (FIRO-O 2017.) The sharing platform business model would be challenging to apply to the existed company's strategy. However, there could be side streams created which will be controlled. Waste can be turned into a product stream, which can potentially reduce the unused

waste and CO2 emissions. Besides this, the need of raw materials will be scaled down and it can give a boost for new product innovations.

The company can take the advantage of this platform by providing its side streams or returned products. The side streams can be directed for the new products creations, while returned wooden pieces can be applied in other construction projects where recovered wood is in favour.

#### 6.2.5 Product as a Service

Product as a service circular business model is providing an alternative model by offering the customers to lease the products or pay-for-use, in order words, product acts like a service.

FIRO-O company does not practice such model in its business. However, it can be offered to start leasing the forest for other companies or wooden pieces that are produced for constructions would be payed for use, although, wood is a relatively cheap material and wooden items are inexpensive, it might be that pay-for-use system would be more expensive and complicated for customers. From the company's point of view, such way can earn more, additionally, if memory chips are installed to wooden pieces (for example, in floor boards), they will remind the user to change them. Plus, such business model provides more interaction with the customer.

Also, FIRO-O can start leasing the machinery they used in production from the producer. It will help company to constantly update the technologies they used and solve the problem of machinery utilization.

To conclude, it is advisable for the company to use the combination of the circular economy business models. Company should pay more attention on how product-life can be extended and how utilized materials can be returned to circulation. Besides this, the firm needs to utilize recycling better and find the industrial side streams.

## 7 CONCLUSION

This chapter concludes all information that was gained through the research and gives the answers to the research questions. The answers to the set research questions are presented, validity and reliability are discussed and suggestions on further research are provided.

### 7.1 Answers to Research Questions

The research is focused on circular economy and examines the importance of circular economy for companies in Russia. The main goal was to improve case company's circular economy strategy and understand will it be advantageous for the company or not. The main research question is: **How circular economy is beneficial for the Russian companies?**

The answer to the question is presented later in the chapter, but first, it is highly important to answer the sub-questions, which were also presented in the beginning of the research.

#### **What is the concept of circular economy?**

Circular economy aims to keep materials at its highest value and utility, providing solutions for waste-free production and consumption in order to reduce waste, pollution, greenhouse gas emissions, uncontrolled resource consumption, energy leakage. It can be achieved through long process of innovating, redesigning, repairing, remanufacturing and recycling. This type of economy is being contrast to "take, make, dispose" model, which is a linear economy. Circular economy cares about the future in economic, social, financial and environmental senses.

#### **What are the circular economy business models?**

The circular business models distinguish from the traditional ones by focusing and considering the stakeholders interests and creating the bigger value, focusing on different aspects rather than sales. There are

five circular economy business models that can be used either individually or in tandem. First one is called “Circular supplies”. This business model provides fully renewable energy and recyclable input materials, which aims to replace the inputs that are single-lifecycle. Second circular economy business model is a Resource recovery model, which focuses on recovering valuable materials out of disposed products. Third business model is a Product life extension model. The model concentrates on extending product’s lifecycle via repairing, remanufacturing and upgrading, which gives new life to materials and may help businesses to gain a new profit. Another model is called “Sharing platform” which operates as a platform that makes possible to uncrease products utilization by enabling shared access to the product. The last business model is “Product as a service”. This model changes the traditional way of using products and creates the alternatives as leasing and pay-for-use methods.

### **What is the situation of circular economy in Russian entrepreneurship?**

Circular economy is not very spread and common in Russia. It is not supported by the government so far. However, companies and separate initiatives are trying to change the current situation by adopting and applying circular economy principles in their businesses. Some Russian entrepreneurs already use recycling methods in production, find ways of using the waste to gain the profit and offer customers clean and excellent products that attract new target audience. To conclude, it can be said that circular economy is only beginning to develop in Russia. The majority of the companies still operate according linear economy principles.

### **How is circular economy beneficial for the Russian companies?**

With the help of sub-questions and research, it is understandable that Russia and precisely Russian companies are in need of circular economy. From environmental perspective, circular economy can solve the pollution and waste problems which companies face. Also, circular economy can

give firms new opportunities for business, find new customers, offer different types of products and generate extra profit. By renovating and applying the most suitable circular economy business model, company can gain competitive advantage comparing with firms which do not practice circular economy principles, as a consequence, attracting new clients and sharing the circular economy idea among consumers.

## 7.2 Validity and Reliability

Validity and reliability are important to consider while conducting the thesis. The core purpose of the thesis was to answer research questions that were presented by the researcher. The author has reached the main research objectives and answers to the research questions are stated and explained. The data for the research was both collected from primary and secondary sources. Primary information was gained via six interviews with companies' representatives, who have answered seven questions prepared by the researcher. Also, the researcher has collected deeper information with FIRO-O company, that was necessary for conducting the development plan. Secondary data was collected from different sources such as official published materials, books, articles and internet materials. Based on these aspects, the conducted research can be considered as valid and reliable.

## 7.3 Suggestions on Further Research

Further research on circular economy can be developed by examining other countries and companies, approaching more firms' representatives from different countries and geographical areas. Also, development plan was created based on the company operating in wood-processing industry; further research can consider other industries and cases, for example, circular economy in beauty or food industry. Furthermore, the more companies can be interviewed for deeper research and understanding of how circular economy can be beneficial for companies.



## 8 SUMMARY

The goal of the research was to study circular economy topic and examine the importance of circular economy for companies in Russia. The final purpose of the thesis was to improve the case company's circular economy strategy and understand whether it will be advantageous for the company or not. The research question of how circular economy is beneficial for Russian companies is answered.

For answering the main research question it was vital to understand the concept of circular economy, its principles and opportunities. Also, the circular economy business models were introduced and explained in order to help create the development plan for the case company. The current situation of circular economy in Russia was studied and examples of companies were given.

The final goal of the research was to create a development plan for the case company and suggest possible changes in the company's circular economy strategy. The development plan was conducted with the help of primary and secondary sources. Interviews, articles and books were used to create the development plan.

For the company, it is suggested to move forward circular economy and use its principles on different stages of production. Future directions require deeper understanding of company's revenue and its market.

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## APPENDICES

### APPENDIX 1. Interview structure in English and Russian languages

Interview: The importance of Circular Economy for companies in Russia

1. Introduce yourself and your company
2. Do you know what is circular economy?
3. Do you use circular economy principles for your business?
4. If yes, do you think it has improved/disimproved your business?
5. How it has improved/disimproved your business/production/revenue?
6. How do you think, should all producers in Russia shift to circular economy model? Why?
7. Do you think circular economy will be common in Russia?

## Интервью: Циклическая экономика в Российских компаниях

1. Представьте себя и свою компанию
2. Вы знаете, что такое циклическая экономика?
3. Вы используете принципы экономики замкнутого цикла в своей компании?
4. Если да, как вы думаете, циклическая экономика улучшила или ухудшила вашу производительность?
5. Как циклическая экономика улучшила или ухудшила ваше производство, прибыль?
6. Как вы думаете, стоит ли компаниям на Российском рынке использовать принципы циклической экономики? Почему?
7. Как вы думаете, циклическая экономика будет распространена в России?

## APPENDIX 2. Interviewees

1. FIRO-O Company. Valeriy Starostin. CEO.
2. OptiKom. Alexander Novikov. Senior Sales Manager. Department of Sales.
3. Baltika Brewery. Department of production warehouse management and negotiable packaging.
4. Second-hand Store "Spasibo". Natalia Galechyan & Lesika Rodenkova. Department of Business Development.
5. Rogachev Milk Canning Plant. Andrey Korotkov. Department of Logistics.
6. Spivak Company. Maria Kunina. Department of Business Development.